

Date: 9/20/2021 Job No.: 7202
To: Jenny Raitt, Director of Planning and Community Development
Cc: Susan Chapnick, Chair, Arlington Conservation Commission
From: Laura Krause, Sr. Env. Scientist
Marta J. Nover, VP – Environmental Services
Subject: **Thorndike Place – 40B Peer Review
Compensatory Storage and Restoration Cost Estimate**

The purpose of this memorandum is to support the Arlington Zoning Board of Appeals (ZBA) in determining a Bond estimate for the planting and restoration elements proposed for the Thorndike Place 40B Development in Arlington, MA, as required to meet performance standards under the Massachusetts Wetlands Protection Act and Town of Arlington Wetlands Protection Bylaw and Regulations.

The proposed estimates are based on the following:

- **Thorndike Place Comprehensive Permit** stamped plans Dorothy Road, Arlington MA – 14 Sheets dated March 13, 2020, revised August 27, 2021 prepared by BSC Group;
- Town of Arlington Wetland Protection Bylaw, Article 8 and Regulations for Wetland Protection, June 4, 2015;
- Massachusetts Inland Wetland Replication Guidelines, Massachusetts Department of Environmental Protection Bureau of Resource Protection Wetlands and Waterways Program, dated March 2002 (the Replication Guide).

As requested by the Town of Arlington, cost estimates are provided for stabilizing, planting, and invasive species management of the following areas:

1. Bio-retention / Rain Garden Area;
2. Compensatory Storage Area; and,
3. Woodland Restoration Area inside project limits.

BIO-RETENTION / RAIN GARDEN AREA

The rain garden area is approximately 550 square feet. According to the plans, this area will be loamed and seeded with a wetland seed mix.

- Assuming \$50/cy of loam, and 4 inches of loam, the soil cost is ~\$350.
- Assuming \$4/sy of seed, the seed cost is ~\$260

Total for soil and planting the Rain Garden is **\$1,525.00.**

COMPENSATORY STORAGE AREA

The total area of Compensatory Storage is ~25,000 square feet. BETA assumed the following plant spacings and sizes (as recommended in the Replication Guide):

- 10-feet on center for trees (50% 5 gallon [gal] and 50% 1-1.5 inch caliper),
- 8-feet on center for shrubs (3 gal),
- 3-feet on center of plugs, and
- Seeding per the manufacturer's specifications.

The total cost for plants, installation, and seeding will be ~\$120,745 (see attached spreadsheet).

It is assumed that not all these plants will need to be replanted and that the spacing will not need to be as dense as a wetland replication area. Based on these assumptions, the cost of re-planting in the Compensatory Storage area was calculated by taking the total estimate for the initial planting and dividing it by two (2).

Based on our assumptions, the cost for re-planting the Compensatory Storage area including labor and materials is estimated at **\$60,375.00.**

WOODLAND RESTORATION AREA

The Woodland Restoration Area is ~43,000 square feet. Assuming the same plant spacings as indicated above, the total cost for plants, installation, and seeding would be ~\$207,610 (see attached spreadsheet).

It is assumed that the entire Restoration Area will not be cleared and grubbed for invasive species management and therefore, the number of plants will not be as high as calculated. In addition, it is assumed that not all vegetation will need to be replaced. Based on these assumptions, the cost of plantings for the Restoration Area was divided by four (4).

Accordingly, the total for re-planting the Woodland Restoration Area including labor and materials is estimated at **\$52,000.00.**

INVASIVE PLANT MANAGEMENT

The area of proposed invasive species management will consist of the Rain Garden, Compensatory Storage Area, and Woodland Restoration Area, which total approximately 1.5 acres. The costs to prepare an Invasive Plant Management Strategy (IPMS) and implement the strategy include:

- Prepare an invasive plant inventory and IPMS: **\$5,000.00.**
- Implement the IPMS for three years: **\$55,000.**

SUMMARY

The Table below presents the total estimated costs for re-planting to the density indicated including labor and materials, as well as preparing and implementing the IPMS for this Project.

Element	Estimate	Adjusted Estimate
Rain Garden	\$1,525.00	\$1,525.00
Compensatory Storage Area	\$120,745.00	\$60,375.00
Woodland Restoration Area	\$207,610.00	\$52,000.00
Invasive Plant Management	\$60,000.00	\$60,000.00
TOTAL	\$389,880.00	\$173,900.00

Attachments:

1. Planting Estimate Spreadsheet

					WHOLESALE		
	QUANT	UNIT	SIZE	UNIT COST	UNIT COST	X FACTOR	PLANTED COST
SEEDING	65	SY	-	\$4	-	2.5	\$650
LOAM	7	CY		\$50		2.5	\$875
TOTAL BIOSWALE							\$1,525

					WHOLESALE		
	QUANT	UNIT	SIZE	UNIT COST	UNIT COST	X FACTOR	PLANTED COST
TREES	145	EA	5 GAL		\$50	2.5	\$18,125
TREES	145	EA	1"-1.5" CAL		\$140	2.5	\$50,750
SHRUBS	450	EA	3 GAL		\$22	2.5	\$24,750
PLUGS	3,200	EA	PLUG		\$2	2.5	\$16,000
SEEDING	2,780	SY	-	\$4	-	-	\$11,120
TOTAL COMPENSATORY STORAGE AREA							\$120,745

					WHOLESALE		
	QUANT	UNIT	SIZE	UNIT COST	UNIT COST	X FACTOR	PLANTED COST
TREES	250	EA	5 GAL		\$50	2.5	\$31,250
TREES	249	EA	1"-1.5" CAL		\$140	2.5	\$87,150
SHRUBS	774	EA	3 GAL		\$22	2.5	\$42,570
PLUGS	5,504	EA	PLUG		\$2	2.5	\$27,520
SEEDING	4,780	SY	-	\$4	-	-	\$19,120
TOTAL RESTORATION AREA							\$207,610

TOTAL PLANTING COSTS \$329,880